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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,490	09/08/2003	E. Scott Hagermoser	59004US002	2018
32692	7590	10/06/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			MOON, SEOKYUN	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			2629	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/658,490	<b>Applicant(s)</b> HAGERMOSER ET AL.	
	<b>Examiner</b> Seokyun Moon	<b>Art Unit</b> 2629	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statements (IDS) received on September 24, 2003, March 28, 2005, and August 26, 2005 have been acknowledged and considered by the Examiner.

### *Response to Arguments*

2. **Claim 26** was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Currently, the claim is amended.

The rejection for **claim 26** made under 35 U.S.C. 112, second paragraph has been withdrawn.

3. Applicant's arguments, see pages 7-8, filed on 12 July, 2006, with respect to the rejection(s) of claim(s) 1-35 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Neuman et al. (US Pat. No. 5,942,815, herein after referred to as "Neuman"), Pryor (US Pat. No. 7,084,859 B1), Tam (US Pat. No. 5,825,351), and Reighard et al. (US Pat. No. 5,423,569, herein after referred to as "Reighard")

### **Claim Rejections - 35 USC § 112**

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2629

5. **Claim 12** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim discloses that the capacitive touch sensor disclosed in claim 1 comprises at least one discrete button.

However, according to figure 2B of the Application, the discrete button sensor 220 is not disposed between the airbag and the airbag cover, but is disposed next to the airbag cover, which is not consistent with the aspect of the invention disclosed in the claim 1.

As best understood by Examiner, the aspect of the invention disclosed in the claim 12, "the capacitive touch sensor comprises at least one discrete button" will be interpreted as "the touch input device comprises at least one discrete button" to be consistent with the aspect of the invention shown in the figures, for further examination purpose.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-23 and 27-35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Neuman (US 5,942,815) and Pryor (US 7,084,859), and further in view of Tam (US 5,825,351).

As to **claim 1**, Neuman [fig. 7] teaches a touch input device ("*steering wheel hub 606*") for interacting with a horn subsystem (fig. 1: "*horn subsystem 116*") in a vehicle that includes an airbag ("*704*") [col. 6 lines 22-28], comprising an airbag cover ("*outer cover 702*") having a

surface accessible to and touchable by an occupant of the vehicle [col. 2 lines 66-67 and col. 3 lines 1-4].

Neuman does not teach the touch input device to interact with electronic systems and to comprise a capacitive touch sensor allowing capacitive coupling between the vehicle occupant's touch on the input device and the touch sensor.

However, Pryor teaches a touch input screen being implemented in a steering wheel of a vehicle and comprising a capacitive touch sensor for interacting with electronic systems included in the vehicle [abstract lines 6-14] [col. 7 lines 26-30] [col. 17 lines 14-17].

It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt Pryor's idea of implementing a capacitive touch sensor in a steering wheel, in Neuman's input device, thus to implement a capacitive touch sensor between Neuman's cover layer and airbag, in order to provide an instrument panel on Neuman's steering wheel allowing the occupant of the vehicle including the steering to read and comprehend vehicle control commands easily [col. 8 line 24 – col. 9 line 46].

Neuman modified by Pryor does not expressly disclose the structure of the capacitive touch sensor.

However, Tam [figs. 1 and 2] teaches a capacitive touch sensor ("*electrode 204*") disposed between a first sub-pad ("*sub-pad 201a*") and a second sub-pad ("*sub-pad 201b*"), the touch sensor configured so that a touch to a designated area of the surface of the first-sub allows capacitive coupling between the touch and the touch sensor through the first sub-pad [col. 2 lines 24-49 and col. 4 lines 11-22], the touch sensor adapted for connecting to a controller ("*pad circuit 205*") capable of using signals generated by the capacitive coupling to interact with electronic systems ("*display 105*") [col. 6 line 64 – col. 7 line 2].

It would have been obvious to one of ordinary skill in the art at the time of the invention to specify the modified Neuman's capacitive touch sensor to have a layout/structure as taught by Tam, in order to minimize the effects of noise picked up at a capacitive coupling input, thus to provide superior noise filtering for the input device [col. 3 lines 57-60].

As to **claim 2**, Neuman teaches the vehicle to be an automobile [col. 2 lines 54-57].

As to **claim 3**, Neuman [fig. 6] teaches the surface ("*outer surface 608*") of the airbag cover comprising a drawing (a horn shaped icon) marking the designated area.

Neuman does not teach the drawing being a relief pattern.

However, since the Applicants has failed to disclose that specifying the shape of the drawing as a relief pattern provides an advantage, is used for a particular purpose, or solves a state problem, it is an obvious matter of design choice to specify the shape of the drawing as a relief pattern.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any pattern of drawing, including a relief pattern drawing, since any pattern would perform equally well at indicating the device use that a device or an instrument is implemented under the surface on which the pattern is drawn. [Appl. pg. 7 lines 13-15]

As to **claim 4**, Neuman [fig. 7] teaches the airbag cover ("*outer cover 702*") being on a steering wheel [col. 2 lines 54-57].

As to **claims 5 and 7**, Neuman does not teach the steering wheel incorporating additional touch sensors or additional capacitive sensors being positioned between the airbag and the airbag cover.

However, the courts have been held that a mere duplication of parts for a multiplied effect is generally recognized as being within the level of ordinary skill in the art. St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7<sup>th</sup> Cir. 1977).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement additional capacitive touch sensors between the airbag and the airbag cover in Neuman's steering wheel to provide additional access for various electrical subsystems to the driver of a vehicle.

As to **claim 6**, Neuman does not teach the airbag cover being on a passenger side of the vehicle.

However, the courts have been held that a mere change of location of parts is generally recognized as being within the level of ordinary skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an airbag on a passenger side of Neuman's vehicle to provide additional safety to the passenger of the vehicle.

As to **claim 8**, Neuman inherently teaches the sensor being configured to safely blow apart upon deployment of the airbag since the airbag is to protect the driver of a vehicle and the unsafe destruction of the capacitive touch sensor implemented in a Neuman's vehicle is not consistent with the purpose of the airbag being implemented in a vehicle.

As to **claim 9**, Neuman modified by Pryor and Tam [Tam: figs. 2 and 3] teaches the capacitive touch sensor being an x-y sensor [Tam: col. 7 lines 25-28].

As to **claims 10 and 11**, the modified Neuman does not expressly disclose the capacitive touch sensor being a quadrant segmented sensor or a scroll bar sensor.

However, since the Applicant has failed to disclose that specifying the type of the capacitive touch sensor as a quadrant segmented sensor or a scroll bar sensor provides an advantage, is used for a particular purpose, or solves a state problem, it is an obvious matter of

design choice to specify the type of the touch sensor as a quadrant segmented sensor or a scroll bar sensor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of a x-y sensor, a quadrant segmented sensor, and a scroll bar sensor, as the capacitive touch sensor since any type of the sensor would perform equally well at processing capacitive touch-input information.

As to **claim 12**, the modified Neuman [Pryor: fig. 10) teaches the touch input device to comprise at least one discrete button ("*screen 1000*").

As to **claims 13-15**, Neuman does not teach expressly a substrate of a capacitive touch sensor to comprise paper, cloth, or plastic.

However, since the Applicant has failed to disclose that specifying the substrate of the capacitive touch sensor to be comprised of any one of paper, cloth, or plastic provides an advantage, is used for a particular purpose, or solves a state problem, it is an obvious matter of design choice to specify the substrate of the capacitive touch sensor to comprise any one of paper, cloth, or plastic.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of nonconductive materials such as paper, cloth, and plastic for the substrate of Neuman's capacitive sensor since any one of nonconductive material would perform equally well at preventing particles being transferred or leaked from the capacitive touch sensor.

As to **claim 16**, the modified Neuman teaches the airbag cover providing a substrate (Tam: "*sub-pad 201a*") for the capacitive touch sensor [col. 6 lines 39-46].

As to **claim 18**, the modified Neuman teaches the electronic systems to include an electronic display [Pryor: col. 13 line 58 - col. 14 line 41].



As to **claims 17 and 19-22**, the modified Neuman does not expressly disclose the electronic systems to include radio controls, a heads up display, a heating/cooling/blower system, a navigational system, or a hands-free phone.

However, Examiner takes official notice that it is well known in the art to use an electronic instrument panel in order to provide controls for car accessories such as a radio, a heads up display, a heating/cooling/blower system, a navigational system, or a hands-free phone.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the modified Neuman's input device to control various car accessories, in order to allow the occupant of the vehicle including the modified Neuman's input device to read and comprehend vehicle control commands for such car accessories easily.

As to **claim 23**, all of the claim limitations have already been discussed with respect to the rejection of claim 1.

As to **claim 27**, the modified Neuman as discussed with respect to the rejection of claim 3 teaches marking the designated area with a relief pattern.

The modified Neuman does not expressly disclose that the relief pattern can be discerned by a user's tactile senses.

However, Examiner takes official notice that it is well known in the art to have a pattern, figure, or drawing such as a horn-shaped figure on a steering wheel that can be discerned by a user's tactile senses.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the modified Neuman's pattern to be discerned by a user's tactile senses in order to allow the user to find a location of the electronic components placed under the steering wheel cover, thus to operate the electronic components easily.

As to **claim 28**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the touch sensor disposed in a manner such that the presence of the touch sensor maintains the look, feel, and functionality of the surface as if the touch sensor was excluded.

The modified Neuman as discussed with respect to the rejection of claim 1 inherently teaches the touch sensor to be disposed in a manner such that the presence of the touch sensor maintains the look, feel, and functionality of the surface as if the touch sensor was excluded, since the touch sensor is disposed between the airbag and the airbag cover, and thus the airbag cover prevents the occupant of the vehicle to sense the existence of the touch sensor by covering the sensor.

As to **claims 29, 30, 32, and 33**, the modified Neuman teaches the surface being a surface of a steering wheel ("10"), a dashboard ("13"), a center console ("11"), or an arm rest ("14").

As to **claims 31 and 34**, the modified Neuman does not expressly disclose the surface being a visor or a seat cover.

However, the courts have been held that a mere change of location of parts is generally recognized as being within the level of ordinary skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the modified Neuman's input device on a visor or a seat cover of a vehicle, in order to provide multiple ways of accessing the input device to the occupants of the vehicle.

As to **claim 35**, all of the claim limitations have already been discussed with respect to the rejection of claim 27.

8. **Claims 24, 25, and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Neuman, Pryor, and Tam as applied to claims 1-23 and 27-35 above, and further in view of Reighard et al. (US Pat. No. 5,423,569, herein after referred to as "Reighard").

As to **claim 26**, the modified Neuman does not teach the step of disposing the capacitive touch sensor on the back surface of the airbag cover to comprise disposing the touch sensor in a mold and molding the airbag cover using the mold so that the touch sensor is embedded in the back surface of the airbag cover.

However, Reighard [col. 5 lines 13-19] teaches a method of implementing an electronic component ("*force sensing resistor*") in an airbag to comprise disposing an electronic component in a mold and molding the airbag cover using the mold so that the electronic component is embedded in the airbag cover.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt Reighard's idea of implementing an electronic component in an airbag using a mold in the modified Neuman, and thus to specify the modified Neuman's method of disposing the capacitive touch sensor on the airbag cover to comprise disposing the sensor in a mold and molding the airbag cover using the mold, as taught by Reighard, in order to simplify the manufacturing process for the airbag cover including the sensor by combining a molding process for the airbag cover and a process for implementing the sensor on the airbag cover into a single process.

As to **claims 24 and 25**, the modified Neuman as discussed with respect to the rejection of claim 26 does not teach the step of disposing a capacitive touch sensor on the back surface of the airbag cover to comprise transferring conductors forming the touch sensor from a decal layer to the back surface of the airbag cover or laminating the touch sensor to the back surface of the airbag cover.

However, as Examiner acknowledges that the transferring or the laminating processes for disposing the sensor on the airbag cover, disclosed in claims 24 and 26 is not a required manufacturing process for the sensor implementation, but is one process out of many alternative manufacturing processes, it is an obvious matter of design choice to adopt such process in order to dispose the sensor on the airbag cover.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to adopt any one of methods such as transferring conductors forming the touch sensor from a decal layer to the back surface of the airbag cover, laminating the touch sensor to the back surface of the airbag cover, or molding the airbag cover using a mold including the sensor, since any method would perform equally well at disposing the capacitive touch sensor on the back surface of the airbag cover.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 27, 2006

S.M.

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", with a large, sweeping flourish at the end.